REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-5, 7-15, 17-18, 21-22, 24 and 26-29 are currently active in the case. Claims 6, 16, 19-20, 23 and 25 were cancelled by a previous amendment. The present amendment amends Claims 1, 11, 17, and 21 without introducing any new matter, and adds new Claims 26-29.

In the pending Office Action, Claims 1-4, 7-14, 17-18, 21-22 and 24 were rejected under 35 U.S.C. § 102(e) as being anticipated by Haitsma et al. (U.S. Patent No. 6,505,223, hereinafter "Haitsma"). Claims 5 and 15 were indicated as allowable if rewritten in independent form.

Applicants acknowledge with appreciation the indication of allowable subject matter. However, because Applicants believe that amended independent Claims 1, 11, 17, and 21, from which Claims 5 and 15 depend, respectively, include allowable subject matter, Claims 5 and 15 are maintained in dependent form a present time.

In response, independent Claim 1 is amended to clearly recite an iterative process to generate the code word, where the number of code words used is iteratively increasing, and comparing the thus generated code words with the predetermined threshold. These amendments are supported in the disclosure as originally filed, for example in the specification from p. 14, l. 23, to p. 15, l. 27. No new matter has been added. In addition, remaining independent Claims 11, 17 and 21 have been amended accordingly.

In addition, new Claims 26-29 are added, dependent from independent Claims 1, 11, ~~17~~ and 21, respectively. New Claims 26-29 recite that the number of used code words is increased by a factor two for each successive increase. These features find non-limiting

support in Applicants' disclosure, for example in Fig. 8, and in the specification at p. 14, l. 23. No new matter has been added.

In response to the rejection of Claim 1 under 35 U.S.C. § 102(e), in light of the amendments to independent Claim 1, Applicants respectfully request reconsideration of this rejection and traverses the rejection, as discussed next.

Briefly summarizing, Applicants' independent Claim 1 relates to a data processing apparatus operable to identify code words to form a code word set, present in a marked version of a material item, where the marked version having been formed by combining each of a plurality of parts of a code word with one of a plurality of units from which the material item is comprised. The apparatus includes, *inter alia*: a detector operable to determine whether at least one of the code words is present in the marked material item from the dependent correlation value for the part of the code word exceeding a predetermined threshold, wherein when the dependent correlation value does not exceed the predetermined threshold the correlator is operable under control of the detector ***to iteratively increase a number of code word parts used to form the recovered part of the code word***, each code word part taken from successive material units, each time the number of code word parts used to form the recovered part of the code word is iteratively increased, the correlator is operable to generate a dependent correlation value by correlating the recovered part of the code word with corresponding parts of the re-generated code word, ***the iterative increasing of the recovered part of the code word continuing until the whole code word is recovered and correlated with the whole regenerated code word, or the predetermined threshold exceeded***.

As discussed in Applicants' specification at page 15, lines 18-27, and also shown in Fig. 8, the features of Applicants' Claim 1 require an iterative process to find a whole code word. In case the threshold correlation value of a part of the code word is not met, another code word part is added to the previously recovered one. This subsequent recovered code

word is then again correlated with the correlator, and if the dependent correlation value of the part of the code word in not met again, another code word part is added to the recovered code word. This iteration is continued until either the whole code word is recovered, or the dependent correlation value is met.

For example, in hierarchical level HL1, the dependent correlation values are calculated from an individual image or frame 0, 1, 2, etc. At hierarchical level HL2, two successive images are taken into account (i.e. 0 and 1), and at hierarchical level HL3, four successive image are taken into account (i.e. 0, 1, 2, and 3.) Please note that the above discussion is citing examples of embodiments that are provided for explanatory purposes only that are not intended to limit the scope of the claims in any fashion.

Turning now to the applied reference, Haitsma describes a method for detecting and embedding a watermark in an image, where the suspect image is subjected to symmetrical phase only matched filtering, prior to detecting the amount of correlation between the signals of the image. (Haitsma, Abstract, Fig. 8.) Haitsma explains with respect to his Figure 5 that frames of images are accumulated into groups of frames, and the groups of frames are partitioned into blocks of equally sized segments, called "tiles." (Haitsma, col. 2, ll. 45-50, col. 3, ll. 29-34, Figs. 2 and 4, reference numerals 21, 22, Fig. 5.) In Haitsma, the watermarking is then applied repeatedly for every tile that makes up the entire image, to facilitate the detection process. (Haitsma, col. 2, ll. 45-49.) To embed a watermark W into such image, every image tile is built up from a limited set of basic, uncorrelated watermark tiles W_i from the watermark W, and a shifted version thereof, for example by a vector k. (Haitsma, col. 3, ll. 10-21, Fig. 3.)

However, Haitsma fails to teach all the features of Applicants' amended independent Claim 1. In particular, the cited passages of Haitsma fails to teach:

> the correlator is operable under control of the detector ***to iteratively increase a number of code word parts used to form the recovered part of the code word***, each code word part taken from successive material units, each time the number of code word parts used to form the recovered part of the code word is iteratively increased, the correlator is operable to generate a dependent correlation value by correlating the recovered part of the code word with corresponding parts of the re-generated code word, ***the iterative increasing of the recovered part of the code word continuing until the whole code word is recovered and correlated with the whole regenerated code word, or the predetermined threshold exceeded***.

(Claim 1, portions omitted, emphasis added.)

Haitsma explains how the detection of a watermark W having tiles W_i in a suspected signal q is performed. (Haitsma, col. 3, ll. 38-39.) Haitsma computes the correlation between a suspect information signal q, and a watermark pattern W. (Haitsma, col. 3, ll. 42-45.) Haitsma says that it is possible to successively correlate all watermark tiles W_i of the watermark pattern W to the signal q, to find for which tile W_i the correlation is maximal, and to thereby detect the shift vector k. (Haitsma, col. 3, ll. 61-64.)

However, Haitsma also explains that such method is time consuming. (Id., col. 3, l. 65.) Therefore, Haitsma proposes an alternative method, where a particular tile W_i is applied to the signal q with different vectors k, to find out for which k the correlation value d_k is maximal. (Haitsma, col. 4, l. 4-18, Fig. 4.) Haitsma's correlation values d_k for all possible shift vectors "are simultaneously computed using the Fast Fourier transform." (Haitsma, col. 4, ll. 15-18.) Moreover, Haitsma then explains that the watermark pattern is detected to be present if a correlation value d_k is larger than a given threshold. (Haitsma, col. 4, ll. 43-45.)

In other words, in Haitsma the same tile W_i is applied with all the possible different shift vectors k and ***simultaneously all the different correlation values for d_k are calculated***, until the correct value for k is found. Only one correlation value is compared to a given threshold. Therefore, Haitsma clearly fails to teach "the correlator is operable to generate a dependent correlation value by correlating the recovered part of the code word with

corresponding parts of the re-generated code word, ***the iterative increasing of the recovered part of the code word continuing until the whole code word is recovered and correlated with the whole regenerated code word***, or the predetermined threshold exceeded, as required by Applicants' independent Claim 1. In other words, the code word part is combined with a code word part recovered from a subsequent image. In Haitsma, no recovered part of the code word is formed by an iterative process of increasing the recovered part of the code word. In Haitsma, the material items are correlated only once and there is no iterative modification of the recovered code words depending on a result of the correlation.

Therefore, the cited passages of Haitsma fail to teach every feature recited in Applicants' Claim 1, so that Claims 1-5 and 7-10 are believed to be patentably distinct over Haitsma. Accordingly, Applicants respectfully traverse, and request reconsideration of, the rejection based on Haitsma.

Independent Claims 11, 17 and 21 recite features analogous to the features recited in independent Claim 1, but directed to different statutory classes, with Claim 11 directed to a method, Claim 17 directed to an encoding data processing apparatus, and Claim 21 directed to a system for identifying versions of a material item. Accordingly, for the reasons stated above for the patentability of Claim 1, Applicants respectfully submit that the rejections of Claims 11, 17 and 21, and all associated dependent claims, are also believed to be overcome in view of the arguments regarding independent Claim 1.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-5, 7-15, 17-18, 21-22, 24 and 26-29 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

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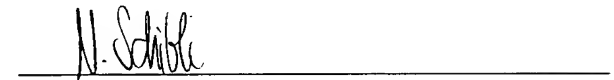

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